3GPP TSG RAN Meeting #71 **RP-160571**
Gothenburg, Sweden, Mar 7 - 10, 2016
revision of RP-160311

Source: **China Unicom**
Title: **New SI Proposal: Study on HSPA and LTE Joint Operation**
Document for: **Approval**
Agenda Item: **10.1.3**

3GPP™ Work Item Description

For guidance, see 3GPP Working Procedures, article 39; and 3GPP TR 21.900.
Comprehensive instructions can be found at http://www.3gpp.org/Work-Items

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Title: Study on HSPA and LTE Joint Operation

Acronym: FS_UTRA_LTE_JOP

Unique identifier:

NOTE: If this is a RAN WID including Core and Perf. part, then Title, Acronym and Unique identifier refer to the feature WI. Please tick (X) the applicable box(es) in the table below:

This WID includes a Core part	
This WID includes a Performance part	

1 3GPP Work Area

X	**Radio Access**
	Core Network
	Services

2 Classification of WI and linked work items

2.0 Primary classification

This work item is a …

X	**Study Item (go to 2.1)**
	Feature (go to 2.2)
	Building Block (go to 2.3)
	Work Task (go to 2.4)

NOTE: Core, Performance and Testing parts of RAN WIs are usually Building Blocks. If you are in doubt, please contact MCC.

2.1 Study Item

Related Work Item(s) (if any]		
Unique ID	**Title**	**Nature of relationship**

Go to §3.

2.2 Feature

Related Study Item or Feature (if any)		
Unique ID	**Title**	**Nature of relationship**

Go to §3.

2.3 Building Block

Parent Feature (or Study Item)		
Unique ID	**Title**	**TS**

This work item is …

	Stage 1 (go to 2.3.1)
	Stage 2 (go to 2.3.2)
	Stage 3 (go to 2.3.3)
	Test spec (go to 2.3.4)
	Other (go to 2.3.5)

2.3.1 Stage 1

Source of external requirements (if any)		
Organization	**Document**	**Remarks**

Go to §3.

2.3.2 Stage 2

Corresponding stage 1 work item		
Unique ID	**Title**	**TS**

Other source of stage 1 information		
TS or CR(s)	**Clause**	**Remarks**

If no identified source of stage 1 information, justify:

Go to §3.

2.3.3 Stage 3

Corresponding stage 2 work item (if any)		
Unique ID	**Title**	**TS**

Else, corresponding stage 1 work item		
Unique ID	**Title**	**TS**

Other justification		
TS or CR(s) or external document	**Clause**	**Remarks**

If no identified source of stage 2 information, justify:

Go to §3.

2.3.4 Test spec

Related Work Item(s)		
Unique ID	**Title**	**TS**

Go to §3.

2.3.5 Other

Related Work Item(s)			
Unique ID	**Title**	**Nature of relationship**	**TS / TR**

Go to §3.

2.4 Work task

Parent Building Block		
Unique ID	**Title**	**TS**

3 Justification

With the increasing of LTE subscribers, it is critical for UMTS operators to consider how to achieve satisfied utilization of UMTS resources. Spectrum refarming needs in long term since the data traffic still increases in the HSPA networks (operators reduce the data tariff). For voice supporting, CSFB still be the common mechanism for LTE devices, and UMTS networks is needed for voice services.

It will be a long-term situation that voice over CS will be existed for long time paralleling with voice over LTE. VoLTE could be a challenge for operators as it needs to deploy IMS and bring with the problems of cell planning, network optimization. For CS voice, the advantage of coverage is obvious since UMTS has been deployed and optimized for long time. Furthermore, CS voice solutions are still under evolutions to provide even better voice service, e.g. EVS etc.

The specified UMTS and LTE interworking mechanisms are not sufficient, as the user experience is restricted by the available radio resource and the channel quality in single RAT. Subscribers could only camp on and access to either LTE or HSPA, who could be scheduled from one RAT to another RAT for inter-RAT load balance.

Tight-integration of HSPA and LTE could be a way for satisfied voice supporting and high data rate. Firstly, the continuous wide coverage of HSPA network can provide satisfactory voice services. Secondly, LTE has attractive abilities for high data rate PS services.

4 Objective

4.1 Objective of SI or Core part WI or Testing part WI

The objective of the study item is to study some possible solutions to support CS in UMTS and PS in LTE, evaluate the impacts on network architecture and interface, e.g.

1) Assumption: UE always camps on LTE and voice service is on UMTS

2) Study the possible solutions, on top of current mechanism, as the following cases.

   i. An idle UE in LTE initiating MT/MO voice call, both network and UE side behaviours

   ii. A connected UE in LTE initiating MT/MO voice call, both network and UE side behaviours

   iii. A connected UE in UMTS with CS service, UE tries to establish PS service

3) Study the possible solution and impacts on architecture, signalling flow enhancement, with the working assumption that impacts should be as less as possible, e.g. LTE specs.

4.2 Objective of Performance part WI

NOTE: Leave empty if the WI proposal does not contain a RAN performance part.

4.3 RAN time budget proposal

NOTE: For WIs/SIs under RAN WG5 leadership this section is not filled out. Otherwise: For a not yet approved WI/SI the rapporteur has to fill out the last row of the table(s) below up to the target date of the WI/SI (if necessary add further tables): Indicate the number of time units (1 TU ~ 2h), i.e. one value for each session/field. If no time unit is needed, leave the field empty.
Once the WI/SI is approved, the tables below will no longer be updated in the WI/SI description (i.e. the tables reflect the status of the initial approval). But changes can be proposed in the status report of the WI/SI.

RAN #71 Q2/2016 RAN #72																			
R1L	R1U	R2L	R2U	R2J	R3	R4RF Core	R4RD Core	R4RF Perf	R4RD Perf	R1L	R1U	R2L	R2U	R2J	R3	R4RF Core	R4RD Core	R4RF Perf	R4RD Perf
84bis	84bis	93bis	93bis	93bis	91bis	78bis	78bis	78bis	78bis	85	85	94	94	94	92	79	79	79	79
			0.5		**1**								**1**		**1**				

RAN #72 Q3/2016 RAN #73									
R1L	R1U	R2L	R2U	R2J	R3	R4RF Core	R4RD Core	R4RF Perf	R4RD Perf
86	86	95	95	95	93	80	80	80	80
			1		**1**				

L: LTE, U: UMTS, J: Joint, RD: RRM/demodulation

NOTE: In case further explanation of the time budget proposal is needed, then please explain this below.

additional comments to the time budget proposal:

5 Service Aspects

6 MMI-Aspects

7 Charging Aspects

8 Security Aspects

9 Impacts

Affects:	**UICC apps**	**ME**	**AN**	**CN**	**Others**
Yes		X	X		
No	X			X	X
Don't know					

10 Expected Output and Time scale

New specifications [If Study Item, one TR is anticipated]						
Spec No.	Title	1st rsp. WG	2nd rsp. WG(s)	Presented for information at plenary#	Approved at plenary #	Comments
TR 37.8xx	Study on HSPA and LTE Joint Operation	RAN3	RAN2	RAN #71	RAN #73	

NOTE: If this is a RAN WID including Core and Perf. part, then all new Core part specs have to be listed first and then all new Perf. part specs. Indicate "Core part" or "Perf. part" under Comments for each spec.
By default a new specs can only be new for one of both parts.

Affected existing specifications [None in the case of Study Items]				
Spec No.	CR	Subject of the CR	Approved at plenary#	Comments

NOTE: If this is a RAN WID including Core and Perf. part, then all new Core part specs have to be listed first and then all new Perf. part specs. Indicate "Core part" or "Perf. part" under Comments for each spec.
If an existing spec is affected by both (Core part and Perf. part), then it has to be listed twice with appropriate approval dates.

11 Work item rapporteur(s)

CAO, Gen
Company: China Unicom
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12 Work item leadership

RAN3 <Primary>, RAN2 <Secondary>

NOTE: If this is a RAN WID including Core and Perf. part, then this WG specifies the WG leading the Core part.
RAN WG4 is by default leading the Perf. part.

13 Supporting Individual Members

Supporting IM name
China Unicom
Huawei
Hisilicon
Nokia Networks
ZTE
Spreadtrum
Xinwei